

Glasgow Coma Scale: A Key Assessment for Neurological Condition

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ABSTRACT

Traumatic injuries are important cause of morbidity and mortality around the world, and the brain trauma injury (BTI) is one of the main determinants of this panorama. Glasgow coma scale has been used in a variety of clinical situations to assess neurological changes in patients, particularly those caused by head injury.

INTRODUCTION :

Nearly 40 years ago, the Glasgow coma scale was developed by Taesdale and Jennet to assist in the standardized assessment of individuals with an impaired level of consciousness it is a quick, practical and standardized system for assessing the degree of consciousness .It was developed by Teasdale and jennet in 1974 .Today it is used internationally as an integral part of any neurological assessment. It is mostly used in the evaluation and management of patient with cranio cerebral trauma Assessment of the cerebral cortex and brain stem functions is based on three responses to stimuli. it is the one of the important method for practitioner to document the neurologic finding over time and predict functional outcome.

Since its development, research has raised concerns regarding inter observer variability related to GCS. Practitioner using GCS must be trained to ensure accuracy and prevent variability.

OVERVIEW:

The GCS has three categories eye opening, verbal response and motor response each category has its own scoring categories, mild, moderate and severe, the final result calculated. The nurse responsibility is to elicit the best response on each of the scales, the higher the score the higher the brain functioning. The highest response is recorded in all categories; the highest available score is 15 while the lowest is 3. Prior to the beginning the assessment, it is important to check for any factors that may interfere with responses for example patient with head injury may often have multiple injuries that alter their GCS. Patient may have

difficulty in administration such as ocular swelling that prevent eye opening and insertion of endotracheal tube insertion that precludes a verbal response , To ensure accuracy and inter user reliability, GCS should be determined based on the assessment performed. The use of barbiturate and paralytic drug to lower the intra cranial pressure and immobilize the patient. The scale is feasible only when barbiturate therapy is given intermittently. Start the assessment with best response and work down as needed. The nurse responsibility is to elicit the best response on each of the scale. The higher the scores, the higher the level of brain functioning. The highest GCS score is 15 for fully alert patient and the lowest possible score is 3, A GCS score of 8 or less is generally indicative of coma. It is important to note any factor which may interfere with the response. For example severe periorbital edema may make eye opening impossible and patient with their jaw wired shut might be unable to speak .To ensure accuracy GCS should be determined based on the assessment performed.

GLASGOW COMASCALE

Table 1: Eye Opening Scale

Criterion	Rating	Score
Eye open before stimulus	Sponteneos	4
Eye open with verbal command	Verbal command	3
Opening of eye with pain or any kind of pressure	Pain	2
Not open at any time	None	1
Untestable or factor interfere eye opening	Untestable	UT
Correct identification of self, place year and month	Oriented	5

Table 2: Best Verbal Response

Criterion	Rating	Score
Confusion, conversant nut disorientation	Confused	4
Lack of sustained conversation	Inappropriate words	3
Incomprehensible words, sounds	Incomprehensible sounds	2
Lack of sound	Lack of sound	1
Untestable	Untestable	UT

Table 3: Best Motor Response

Criterion	Rating	Score
Obedience of Command	Obey Command with verbal instruction	6
Localization of pain	Lack of obedience	5
Flexion of arm in response to pain	Flexion to pain	4
Flexing of arm at elbow and pronation, making a fist	Abnormal flexion	3
Extension of arm at elbow	Extension to pain	2
Lack of response or no movement	None	1
Untestable	Untestable	UT

**Eye opening:** After checking any interfering factor, the next step is to check eye response .The awakening mechanisms in the brainstem are active when there is a spontaneous eye opening ”. Eye opening to verbal command and spontaneous eye opening indicates clinical improvement and recovery from impaired consciousness.

**Verbal Response :** After eye opening, Patient is assesses for their ability to communicate verbally.

**Motor Response :** The final section of GCS is to assess the best motor response. Patient may have spontaneous movement or patient may need physical stimulus.

**GCS AS AN OUTCOME PREDICTOR :** Today GCS is routinely applied to paitents with variety of diagnoses. Research indicates that the GC is usually applied to cranio cerebral trauma, in these patient a poor GCS score is related to poor outcome. It is specific and structured, allowing different health care professionals to arrive at the same conclusion regarding the patient status.

**Conclusion:** The GCS is an effective neurological evaluative tool, which should be used accurately. GCS is helpful to identify neurologic dysfunction and follow-up progress of level of consciousness.

REFERENCE

01. Levin S Harvey, Benton Lester Arthur, Grossman G Robert. Neurobehavioral Consequences of Closed Head Injury, Oxyford University press.

02. Campbell W.william.The Neurologic Examination. Seventh edition.Lippincott Williams&Wilkins.

03. Lewis Mantik Sharon,Heitkemper Mclean Margaret and Dirksen Ruff Shannon. Medical Surgical Nursing, Sixth edition, Mosby.

04. Santos Cajaíba Wesley ,Campanharo Regina Vancini- Cássia, Lopes Barbosa Teixeira Maria Carolina, Okuno Fernanda Pinto Meiry, Batista Assayag Ruth Ester. Assessment of nurse's knowledge about Glasgow coma scale at a university hospital.2016 April/June. Available from:  
<http://www.scielo.br/scielo.php?script=sci arttext &pid=S1679-45082016000200016>

05. Glasgow Coma Scale. Western Nurse, October 2015:14-15.

06. Lemone Priscilla,Burke Karen. Medical Surgical Nursing. 4<sup>th</sup> ed. New Delhi: Pearson Education; 2008.

